147

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EXAMINER	
LI, BAO Q	

ART UNIT	PAPER NUMBER
1648	

DATE MAILED: 04/05/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/888,235	BLONDER ET AL.	
	Examiner	Art Unit	
	Bao Qun Li	1648	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *28 October 2003*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,4-7,9-31 and 33-44* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,4-7,9-31,33 and 34* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☒ Interview Summary (PTO-413), Paper No(s)/Mail Date. *16* .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claims 1, 4-7, 9-31 and 33-44 are pending.

The previous Office Action mailed on January 28, 2004 has been vacated due to inadequate address of Dr. Claire M. Coeshott' s Declaration filed by Applicants. The new Office Action then follows.

RCE

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 10/28/2003 has been entered. The Office Action of RCE follows:

Response to Amendment

This is a response to the amendment, paper No. 15, filed 10/28/03. Claims 1, 9 and 31 have been amended. Claims 2-3, 8, 32 and 45-147 have been canceled. Claims 1, 4-7, 9-31 and 33-44 are pending and considered before the examiner.

Please note any ground of rejection(s) that has not been repeated is removed. Text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office Action.

Declaration

1. The Declaration under 37 CFR 1.132 filed April 28, 2003 is sufficient to overcome the rejection of claims 1, 4-7, 9-13 and 33 based upon the argument that Dr. Claire declares that the results of a significant higher and more rapid antibody response of using a composition comprising antigen formulated with Pluronic F127 co-polymer in combination with an adjuvant of chitosan or CpG motif compared with the composition comprising the antigen formulated with an adjuvant or co-polymer alone are expected. Because the characteristic of the polymer is to delay the release of an encapsulated agent, it might be expected that administering the antigen in the reverse-thermal viscosity composition would delay distribution of the antigen to the

relevant cells of the immune system, thus slowing any immune response (See lines 2-12 on page 2).

Claim Objection

2. Claim 1 is objected to because of the following informalities: the recitation of "some temperature range within a range of from 1°C to 37 °C;" is so confused language for describing the claimed temperature range. Do Applicants mean that the change of a temperature within the range from 1°C to 37 °C? Please clarify.

New Grounds Rejections:

Claim Rejections - 35 USC § 112

3. The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

4. Claims 1, 15, 17-31, 33 and 35 are rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for using a composition comprising an antigen, tetanus toxin and a copolymer Fluronic F127® plus adjuvant Chitosan or CpG immunostimulatory nucleotide to induce an enhanced immune response against tetanus toxin, does not reasonably provide enablement for having a composition comprising any copolymer with any or all adjuvant except alum with any or all antigen. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the invention commensurate in scope with these claims.

5. The test of scope of the enablement is whether one skilled in the art could make and use the claimed invention from the disclosures in the application coupled with information known in the art would undue experimentation (See United States v. Theketronic Inc., 8USPQ2d 1217 (fed Cir. 1988). Whether undue experimentation is required is not based upon a single factor but rather a conclusion reached by weighting many factors. Theses factors were outlined in Ex parte

Forman, 230 USPQ 546 (Bd. Pat. App. & Inter. 1986) and again in re Wands, 8USPQ2d 1400 (Fed. Cir. 1988). These factors include the following:

6. 1) 2). State of art and Unpredictability of the field. The state of art teaches that there are many kinds of adjuvants in the field, and each of them uses different mechanism for exhibiting its adjuvant effect (Edelman R. Vaccine Adjuvants and Methods in Molecular Medicine 20000, Edited by O'Hagan, Humana Press Inc. Table 1 on page 4-5 and Table 2 on page 7). (Cox et al. Vaccine 1997, Vol. 15, No. 3, pp. 248-256, see entire document). Some of adjuvants, such as ribavirin, favor the Th1 type immune response as reported by Tam et al. (J. Hepatology 1990, Vol. 30, pp. 376-382); whereas others, such as a non-toxic mutant of cholera toxin, favor Th2 type immune response as evidenced by Yamamoto et al. (P.N. A. SD. USP 1997, Vol. 94, pp. 5267-5272). Moreover, in the preclinical studies of adjuvants and vaccine, the same adjuvant can sometimes, exhibits different biological functions. Therefore, the expertise, Robert, Edelman teach that there are multiple factors need to be considered for determining an adjuvant effect, which include the nature and dose of an antigen, the stability of the adjuvant formulation, the schedule and rout of immunization, and animal species and strain studies (See Section of 12 on page 19).

7. Applicants are also reminded that different antigens have different biological characteristic in term of inducing different immune responses. For example, hepatitis C non-structural protein predominantly induce Th1 phenotype antibody and CD4+ T cell immune response as taught by Encke et al. (Intervirology 1999, Vol. 42, pp. 117-124), Whereas some antigen predominantly induce Th-2 type immune response, such as tetanus toxin.

8. 3) & 4) Number of working examples and Amount of guidance presented in the specification. In the instant case, specification only teach that the copolymer in combination of chitosan or CpG motif produce an enhanced humoral immune response against tetanus toxin, which is a Th2 type antigen. There is any example that shows that a combination of the claimed thermal reversible copolymer with any or all adjuvant except alum can be used as a composition to produce a faster and enhanced immune response for any or all other antigen, especially for some intracellular microbe antigen. Besides, Applicants do not teach or give any guidance for selecting any antigen from any particular pathogen, tumor, hormone etc, in combination with an adjuvant.

9. 5) Scope of the claims. The claims broadly read on a composition comprising any or all antigen in combination with any or all thermal reversible copolymer and an adjuvant except alumn.

10. 6) & 7) Nature of the invention and skill in the art. The nature of invention involves a development of a pharmaceutical composition that will be used in vivo. However, as noted by some expertise in the field, a significant hurdles remain to be overcome in order for a skilled artisan to practice the claimed invention.

11. Given the above analysis of the factors that the courts have determined are critical in asserting whether a claimed invention is enabled, it must be considered that the skilled artisan would have had to have conducted undue and excessive experimentation in order to practice the claimed invention.

Claim Rejections - 35 USC § 112

12. Claims 15, 16, 17-31, 3 and 35 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter, which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. In the instant case, Applicants have only disclosed a composition comprising a tetanus toxin, a thermal reversible copolymer Pluronic 127 and an adjuvant chitosan or CpG motif nucleotide and use of the composition is able to produce a fast and enhanced immune response. However, no other composition comprising more than antigen or other antigen rather than tetanus toxin has been disclosed. Although claims are drafted to list any or all antigen from many pathogen, all tumor or some hormone etc. there is no exactly teach which antigen is selected from different pathogens, such as HCV, HIV etc.; and which adjuvant is composed in each antigen composition. Because the state art does not teach any adjuvant will work equally well with any or all antigen or a thermal eversible copolymer, According to 35 USC 112, which requires inter alia that " a paten specification contains a written description of the invention and the manner and process of making and using in such full clear and concise term as to enable one skilled in the art to make and use the invention".

Claim Rejections - 35 USC § 102

13. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

14. Claims 1, 4, 5-7, 9-11, 12, 15, 20, 25, 29 and 43-44 are rejected under 35 U.S.C. 102(b) as being anticipated by McNickoli et al. (AIDS RESEARCH AND HUMAN RETROVIRUSES 1998, Vol. 14, No. 16, pp. 1457-1471) in light of teaching of Balasubramanian et al. (US Patent No. 6,416,947B), Allison A (METHODS 1999, Vol. 19, pp. 87-93) and Viegas et al. (a: US Patent No.5,300,295A).

15. McNickoli et al. teach a method to administer a composition comprising a HIV-envelope protein gp120 or monmeric V3 loop peptide as an immunogen, a block copolymer CRL1005 and squalene that are formulated in normal saline (pH 7.2) of o/w (oil in water), w/o (water in oil), or w/o/w (water/oil/water) for producing an enhanced immune response. The block copolymer CRL 1005 is a poloxamer type copolymer with a central hydrophobic polymer chain of polyoxypropylen (POP) flanked by hydrophilic chain of polyxylethylen (POE) with a formula of $HO(C_2H_4O)_b(C_3H_6)_a(C_2H_4O)_bH$ in light of teaching by Balasubramian et al. (See cols. 9-14). The molecular weight of POP comprise about more than 70% of the whole copolymer.

16. Regarding to the limitation of the composition further comprising an addictive as an adjuvant other than alum. that enhances the immune response, the squalane disclosed in the formulation disclosed by McNickoli et al. is an adjuvant in light of teaching by Allison because Allison teaches that squalane or squalane emulsion are efficient adjuvants, eliciting both human and cellular immune response (See entire document, especially abstract). Allison particularly points out that the triblock copolymer, such as Pluronic L121, added to squalane emulsions augments their adjuvant effect (See section of nonionic block copolymers on page 89).

17. Regarding to the limitation of the copolymer having a reverse thermal viscosity behavior, which causes the viscosity of the composition increases when the temperature of the composition increase over some temperature range from 1°C to 37 °C, and the first temperature is the range of 1°C to 20 °C, and the second temperature is in a range of 25°C to 37 °C, the copolymer of

CRL1005 inherently contains such characteristics in light of the teaching by Viegas et al. because Viegas et al. teach that the polypropylene/polyxyethylen block polymer formulated either as $HO(C_2H_4O)_b(C_3H_6O)_a(C_2H_4O)_bH$ or $H(OC_2H_2CH_2)_b(OCHCH_2)CH_{3a}(OC_2H_2CH_2)_bOH$ is characterized as a heat sensitive polymer, in which the copolymer is in liquid form at room temperature or below and gel with a desired osmolality at mammalian body temperature (Claims 1-23). It is well known in the art that mammalian body temperature is 37 °C. Therefore, the claimed invention is anticipated by the cited prior art.

18. Claims 1, 4, 5-7, 9-11, 12, 15 and 43-44 are rejected under 35 U.S.C. 102(b) as being anticipated by Winter et al. (Infection and Immunity 1988, Vol. 56, No. 11, pp. 2808-2827) in light of teaching of Allison A (METHODS 1999, Vol. 19, pp. 87-93) and Viegas et al. (a: US Patent No. 5,300,295A).

19. Winter et al. teach a method to administer a composition comprising a natural or synthetic immunogen of porin and smooth lipopolysacharide (porin-S-LPS) extracted from virulent Brucella obortus, a pluronic polymer L121 and N-acetylmuramyl-L-α-aminobutyryl-D-isoglutamine (bMDP) and squalane in a PBS solution with 02% Tween 80 (PBS-Tween) for producing an enhanced immune response. The pluronic polymer L121 also termed as poloxamer 401 is a triblockpolymer comprising a central hydrophobic polymer chain of polyoxypropylen (POP)flanked by hydrophilic chain of polyxylethylen (POE) with a formula of $HO(C_2H_4O)_b(C_3H_6)_a(C_2H_4O)_bH$ or $H(OC_2H_2CH_2)_b(OCHCH_2)CH_{3a}(OC_2H_2CH_2)_bOH$. It contains 10% by weight of POE and it is in a liquid form at room temperature (See section of Non-ionic Block Copolymers and Fig. 2 on page 89). bDMP (See section of Adjuvants on page 2810) and squalane in light of teach by Allison A (See pages 89) are all adjuvants used in the composition that are able to augment the immune response of porin-S-LPS antigen complex (See Table 4 on page 2812).

20. Regarding to the limitation of the copolymer having a reverse thermal viscosity behavior, the copolymer of L121 inherently contains such characteristics in light of the teaching by Viegas et al. as described above. Therefore, the claimed invention is anticipated by the cited prior art.

21. Claims 1, 4, 5-7, 9-11, 12, 15, 18, 20 and 43-44 are rejected under 35 U.S.C. 102(b) as being anticipated by Coulter et al. (Vaccine 1997, Vol. 16, No. 11/12, pp. 1243-1253) in light of

teaching of Allison A (METHODS 1999, Vol. 19, pp. 87-93) and Viegas et al. (a: US Patent No. 5,300,295A).

22. Coulter et al. disclose that an immune response induced by a detergent-disrupted influenza virus vaccines, formulated as ISCOMS™, or oil-in water (o/w) emulsion, were further enhanced by an addition of a non-ionic block copolymer L121 in mice (See abstract, section of Oil-in Water vaccine on pages 1245-1246, Table 6 and Fig. 3 on page 1250). As described above, the L121 is a pluronic polymer L121 comprising a central hydrophobic polymer chain of polyoxypropylen (POP) flanked by hydrophilic chain of polyxylethylen (POE) , which is formulated as $(HO(C_2H_4O)_b(C_3H_6)_a(C_2H_4O)_bH$ or $H(OC_2H_2CH_2)_b(OCHCH_2)CH_{3a}(OC_2H_2CH_2)_bOH)$ and is inherently characterized with a reverse thermal viscosity behavior in light of the teaching by Viegas et al as described above. The squalane, ISCOM etc used in the composition are all non-alum adjuvants. Therefore, the claimed invention is anticipated by the cited reference.

23. Claims 1, 4, 5-7, 9-11, 12, 15, 18, 20, 29 and 43-44 are rejected under 35 U.S.C. 102(b) as being anticipated by Hunter et al. (US Patent No. 5,885,590A) in light of teaching of Allison A (METHODS 1999, Vol. 19, pp. 87-93) and Viegas et al. (a: US Patent No. 5,300,295A).

24. Hunter et al. disclose that a method for inducing an enhanced immune response by using an immunogenic composition comprising an HBsAg and copolymer L180.5 in an oil-in water (o/w) emulsion that contains squalane (Example 19 on col. 19). L180.5 is a pluronic polymer comprising a central hydrophobic polymer chain of polyoxypropylen (POP) flanked by hydrophilic chain of polyxylethylen (POE) , which is formulated as $(HO(C_2H_4O)_b(C_3H_6)_a(C_2H_4O)_bH$ or $H(OC_2H_2CH_2)_b(OCHCH_2)CH_{3a}(OC_2H_2CH_2)_bOH)$ (See col. 11), which inherently has a property of a reverse thermal viscosity behavior in light of the teaching by Viegas et al as described above. The squalane is a non-alum adjuvants. Therefore, the claimed invention is anticipated by the cited reference.

25. Claims 1, 4, 5-7, 9-11, 12, 15, 18, 20, 29 and 43-44 are rejected under 35 U.S.C. 102(b) as being anticipated by Raychaudhuri et al. (US Patent No. 5,695,770A) in light of teaching by Hunter et al. (J. Immunol. 1984, Vol. 133, No. 6, pp. 3167-3175), Allison A (METHODS 1999, Vol. 19, pp. 87-93) and Viegas et al. (a: US Patent No. 5,300,295A).

26. Raychaudhuri et al. disclose that a method for inducing an enhanced immune response by using an immunogenic composition comprising an antigen, a pluronic copolymer, squalane and Tween 80. The antigen has been disclosed as an Ovalbumin, an HIV gp120, human papilloma virus E6 or E7. The pluronic polymer is selected from polyxamer 401 (L121), Pluronic L62LF, Fluronic L101, Pluronic L64, EG1000, Tetronic 1501, Tetronic 150RL, Tetronic 701, tetronic 901, Tetronic 1301, Tetronic 130R1. All of these copolymer comprise a central hydrophobic polymer chain of polyoxypropylen (POP) flanked by hydrophilic chain of polyxylethylen (POE) , which is formulated as $(HO(C_2H_4O)_b(C_3H_6)_a(C_2H_4O)_bH$ or $H(OC_2H_2CH_2)_b(OCHCH_2)CH_{3a}(OC_2H_2CH_2)_bOH)$ (See col. 11) with different molecular weights in light of the teaching by Hunter et al. (See Table 1 on page 168, claims 1, 2, 5-9). They all inherently have a property of a reverse thermal viscosity behavior in light of the teaching by Viegas et al as described above. Moreover, because the squalene is a non-alum adjuvant in light of teaching by Allison, the claimed invention is anticipated by the cited reference.

27. Claims 1, 4, 5-7, 9-11, 12, 15, 18, 20 and 43-44 are rejected under 35 U.S.C. 102(b) as being anticipated by Byars et al. (Vaccine 1990, Vol. 8, pp. 49-56) Allison A (METHODS 1999, Vol. 19, pp. 87-93) and Viegas et al. (a: US Patent No. 5,300,295A).

28. Byars et al. disclose that a method for inducing an enhanced immune response comprising use of immunogenic composition comprising an antigen of influenza B virus HA in formulation of SAF-1 containing an adjuvant peptide [Thr]-MDP, wherein the SAF-1formulation comprises squalane, Pluronic L121, Tween 80 and PBS buffer (See section of immunization on page 50). As described above the polyxamer 401 (L121) inherently has a property of a reverse thermal viscosity behavior in light of the teaching by Viegas et al as described above. Moreover, MDP is adjuvant peptide and the squalane is also a non-alum adjuvant in light of teaching by Allison, the claimed invention is anticipated by the cited reference.

29. Claims 1, 4, 5-7, 9-11, 12, 15, 18, 20, 29 and 43-44 are rejected under 35 U.S.C. 102(b) as being anticipated by Raychaudhuri et al. (US Patent No. 5,709,860A) in light of teaching by Hunter et al. (J. Immunol. 1984, Vol. 133, No. 6, pp. 3167-3175), Allison A (METHODS 1999, Vol. 19, pp. 87-93) and Viegas et al. (a: US Patent No. 5,300,295A).

30. Raychaudhuri et al. disclose that a method for inducing an enhanced immune response by using an immunogenic composition comprising an antigen, a pluronic copolymer, squalane and

Tween 80. The antigen is selected from group consisting of HIV gp120, hepatitis B surface antigen, hepatitis A antigen, Herpes virus antigen, human papilloma virus E6 or E7EBV antigen, malaria antigen and many other tumor or cancer antigens (Claims 2 and 6). The pluronic polymer is selected from polyxamer 401 (L121), Pluronic L62LF, Fluronic L101, Pluronic L64, EG1000, Tetronic 1501, Tetronic 150RL, Tetronic 701, tetronic 901, Tetronic 1301, Tetronic 130R1. All of these copolymer comprise a central hydrophobic polymer chain of polyoxypropylen (POP) flanked by hydrophilic chain of polyxylethylen (POE), which is formulated as $(HO(C_2H_4O)_b(C_3H_6)_a(C_2H_4O)_bH$ or $H(OC_2H_2CH_2)_b(OCHCH_2)CH_{3a}(OC_2H_2CH_2)_bOH)$ (See col. 11) with different molecular weights in light of the teaching by Hunter et al. (See Table 1 on page 168, claims 1-23). They all inherently have a property of a reverse thermal viscosity behavior in light of the teaching by Viegas et al as described above. Moreover, because the squalane is a non-alum adjuvant in light of teaching by Allison, the claimed invention is anticipated by the cited reference.

31. Claims 1, 4, 5-7, 9-11, 12, and 43-44 are rejected under 35 U.S.C. 102(b) as being anticipated by Hunter et al. (Vaccine 1991, Vol. 9, pp.250-256) in light of teaching by Allison A (METHODS 1999, Vol. 19, pp. 87-93) and Viegas et al. (a: US Patent No. 5,300,295A).

32. Hunter et al. disclose that a method for inducing an enhanced immune response by using an immunogenic composition comprising an antigen of hen egg albumin, which is conjugated with an adjuvant hepaten, trinitrophenyl (TNP). The composition is formulated in SAF-MF that comprises non-ionic copolymer L141, L180.5, L182.5 in an oil0water emulsion comprising squaulan. The copolymers all inherently have a property of a reverse thermal viscosity behavior in light of the teaching by Viegas et al as described above. The squalane in light of teaching by Allison as described above and hepaten TNP are all non-alum adjuvants. Therefore, the claimed invention is anticipated by the cited reference.

33. Claims 1, 4, 5-7, 9-11, 12, 15, 20, 29 and 43 –44 are rejected under 35 U.S.C. 102(b) as being anticipated by Miller et al. (Vaccine 1992, Vol. 10, pp.547-550) in light of teaching by Allison A (METHODS 1999, Vol. 19, pp. 87-93) and Viegas et al. (a: US Patent No. 5,300,295A).

34. Miller et al. disclose that a method for inducing an enhanced immune response by using an immunogenic composition comprising an antigen of peptide antigen of CS protein of P.

cynomolgi, B or NIH strain. The peptide antigen is conjugated to BSA. The immunogenic composition further comprises squalane, LPS, copolymer L121, or L141, or L180.5, Tween 80 in the PBS buffer. The copolymers all inherently have a property of a reverse thermal viscosity behavior in light of the teaching by Viegas et al as described above. The squalane in light of teaching by Allison as described above and LPS are all non-alum adjuvants. Therefore, the claimed invention is anticipated by the cited reference.

Conclusion

No claims are allowed.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Bao Qun Li whose telephone number is 571-272-0904. The examiner can normally be reached on 7:00 to 4:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, James Housel can be reached on 571-272-0902. The fax phone number for the organization where this application or proceeding is assigned is 571-272-1600.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Bao Qun Li
Art Unit 1648
March 25, 2004

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4/2/04